

### **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### **Listing of Claims:**

1. (currently amended) A method for manufacturing a cooling element to be used in the structure of a flash smelting furnace, a blast furnace, an electric furnace or other metallurgical reactor, said cooling element comprising a copper housing~~[[ - ]]~~made of one single piece, in which housing there is formed a channel system for the circulation of the cooling medium, one or more lining elements made of fireproof material, ~~said housing and lining element including means for connecting them together,~~ the method comprising connecting the one or more lining element elements and the housing so that the one or more lining elements are ~~element~~is movable in the vertical direction with respect to the housing in response to thermal expansion during operation of said furnace or reactor.
2. (currently amended) A method according to claim 1, further comprising in the surface of the housing, arranging one or more vertical grooves, in which one or more grooves the one or more lining elements are placed.
3. (currently amended) A method according to claim ~~[[1]]~~ 2 further comprising in the one or more lining element elements, arranging a bracket-like edge part that fits in the one or more grooves ~~groove provided in the housing~~.
4. (currently amended) A method according to claim 2, further comprising in the ~~vertical groove arranged on the surface of the housing~~ one or more grooves, placing the one or more lining elements along the whole width of the one or more grooves ~~groove~~, so that the one or more lining elements are located on top of each other.

5. (currently amended) A method according to claim 2, further comprising narrowing the one or more grooves ~~groove arranged in the housing~~ from the groove bottom towards the surface of the housing.
6. (previously presented) A method according to claim 2, wherein the width of the groove bottom is essentially 55 – 100 millimeters.
7. (previously presented) A method according to claim 2, wherein the width of the groove orifice is essentially 50 — 95 millimeters.
8. (previously presented) A method according to claim 2, wherein the depth of the groove is essentially 30 — 60 millimeters.
9. (currently amended) A method according to Claim 2, further comprising placing the cooling element in the furnace so that the one or more grooves are positioned in the vertical direction.
10. (previously presented) A method according to Claim 2, further comprising narrowing the bottom part of the housing downwards.
11. (currently amended) A method according to Claim 1 [[2]], further comprising connecting the one or more lining elements to the housing before the cooling element is installed in the furnace.
12. (currently amended) A method according to Claim 1, further comprising connecting the one or more lining elements to the housing after the housing is installed in the furnace.
13. (currently amended) A method according to Claim 1, further comprising in the depth direction of the cooling element, extending the one or more lining elements to outside the housing.

14. (currently amended) A method according to Claim 1, further comprising completely covering with the one or more lining elements ~~that the~~ surface of the housing ~~that gets into contact~~ to be contacted with ~~the~~ a melt in the furnace.

15. (currently amended) A method according to Claim 1, further comprising interconnecting the two or more cooling elements at the one or more junctions provided ~~in~~ between the two or more cooling elements.

16 (currently amended) A method according to claim 15, further comprising in the auxiliary groove formed at the ~~junction~~ one or more junctions, placing one or more lining elements in the vertical direction.

17. (currently amended) A cooling element to be used in the structure of a flash smelting furnace, a blast furnace, an electric furnace or other metallurgical reactor, said cooling element comprising a copper housing made of one single piece, in which housing there is formed a channel system for the circulation of the cooling medium, and further comprising one or more lining elements made of fireproof material, said housing and one or more lining elements ~~including means for connecting them~~ being connected together, and the one or more lining elements ~~element~~ and the housing being connected so that the one or more lining elements ~~are~~ element is movable in the vertical direction with respect to the housing in response to thermal expansion during operation of said furnace or reactor.

18. (currently amended) A cooling element according to claim 17, wherein ~~on~~ the surface of the housing ~~there are arranged~~ comprises one or more vertical grooves, in which the one or more lining elements are placed.